

In The Claims:

Applicants acknowledge the election of claims 54-83, 97-107, and 115-118. Please cancel claims 59, 66, 73, 74, 81, 84-96, 106, 107, and 108-118 without prejudice or disclaimer. Claims 84-96 and 108-114 were withdrawn from consideration by the Examiner subject to a Restriction Requirement. Applicants hereby expressly reserve the right to file divisional applications or take such other appropriate measures deemed necessary to protect the inventions in the non-elected claims.

Please amend the claims as follows:

Subt H-11
613
~~54. A method for altering the amino acid composition of a native protein of interest, said method comprising introducing amino acid changes into said protein to create an engineered protein, wherein:~~

- ~~a) said amino acid changes alter the amino acid content of said protein by at least 10%;~~
- ~~b) said engineered protein has the conformation of the native protein; and~~
- ~~c) said conformation of the engineered protein is confirmed by binding said engineered protein with a set of interacting molecules capable of binding with the native protein, wherein said molecules recognize native conformation.~~

Subt H-11
613
~~57. The method of Claim 54 wherein said interacting molecules are proteins that form homodimers or heterodimers with said native protein of interest, wherein said proteins are not antibodies.~~

Subt H-11
613
~~58. A method for altering the amino acid composition of a vegetative storage protein, said method comprising introducing amino acid changes into said protein to create an engineered protein, wherein:~~

- ~~a) said amino acid changes alter the amino acid content of said protein by at least 10%;~~

- Subt
G-15
H-1
Cont
- b) said engineered protein has the conformation of the native protein;
 - c) said conformation of the engineered protein is confirmed by binding said engineered protein with a set of interacting molecules capable of binding with the native protein;
 - d) said interacting molecules recognize native conformation and are proteins that form homodimers or heterodimers with said native protein of interest, wherein said interacting molecules are not antibodies.
-

Subt
H-1

60. The method of Claim 58, wherein said amino acid changes comprise increasing the levels of methionine.

61. The method of Claim 58, wherein said amino acid changes are introduced into predetermined sites.

G-16

62. The method of Claim 61, wherein said predetermined sites are determined using secondary structure prediction or homology comparison.

63. The method of Claim 58, wherein said amino acid changes are introduced at random.

G-17 Subt
H-1

64. The method of Claim 64, wherein said engineered protein is confirmed as having the conformation of said native protein by filter lift assay or ELISA.

G-18 Subt
H-1

65. The method of Claim 58, wherein said nutritionally essential amino acids are increased to represent at least 20% of the total amino acid content of the protein.

G-19 Subt
H-1

66. The method of Claim 58, wherein said protein is vegetative storage protein.

69. A method for altering the amino acid composition of a native protein of interest, said method comprising introducing amino acid changes into said protein to create an engineered protein having increased nutritional value, wherein:

- a) said amino acid changes increase levels of at least one nutritionally essential amino acid in the engineered protein;
- b) said nutritionally essential amino acid or nutritionally essential amino acids are increased to represent at least 10% of the total amino acid content of the engineered protein;
- c) said engineered protein has the conformation of the native protein;
- d) said conformation of the engineered protein is confirmed by binding said engineered protein with a set of interacting molecules capable of binding with the native protein; and
- e) said molecules recognize native conformation.

G19
Sub H
concl

72. The method of Claim 69 wherein said interacting molecules are proteins that form homodimers or heterodimers with said native protein of interest.

75. The method of Claim 69, wherein at least one of said at least one nutritionally essential amino acid or nutritionally essential amino acids is methionine.

80. The method of Claim 79, wherein said engineered protein is confirmed as having the conformation of said native protein by filter lift assay or ELISA.

82. The method of Claim 69, wherein said nutritionally essential amino acids are increased to represent at least 20% of the total amino acid content of the protein.

G23
Sub H

Sub H
G24
97. A method for altering the amino acid composition of a vegetative storage protein, said method comprising introducing amino acid changes into said protein to create an engineered protein, wherein:

- a) said amino acid changes alter the amino acid content of said protein by at least 10%;
- b) said engineered protein as the conformation of a native vegetative storage protein; and
- c) said conformation of the engineered protein is confirmed by binding with a panel of monoclonal antibodies which recognize the native protein conformation and are capable of binding said native vegetative storage protein.

G25 Sub H
99. The method of Claim 97, wherein said amino acid changes comprise substitutions rather than deletions or additions.

G26 Sub H
105. The method of Claim 104, wherein said engineered protein is confirmed as having the conformation of said native protein by filter lift assay or ELISA.

Please add the following new claims:

Sub H
G27
119. The method of claim 57, wherein said native protein of interest is VSP α or VSP β and said proteins that form homodimers or heterodimers with said native protein of interest are VSP α or VSP β .

120. The method of Claim 54, wherein said amino acid changes are introduced into predetermined sites.

121. The method of Claim 120, wherein said predetermined sites are determined using secondary structure prediction or homology comparison.